

ABSTRACT

A method of forming a capacitor comprising the following steps. A substrate having a lower low-k dielectric layer formed thereover is provided with the lower low-k dielectric layer having a dielectric constant of less than about 3.0. Metal vertical electrode plates are formed within the lower low-k dielectric layer so that the adjacent metal vertical electrode plates have lower low-k dielectric layer portions therebetween. The lower low-k dielectric layer portions between the adjacent metal vertical electrode plates are replaced with high-k dielectric material trench portions having a dielectric constant of greater than about 3.0.